

CLAIMS

1. An image processing method comprising:

a first step of detecting an iris region of an eye of a person from an original image; and

5 a second step of performing image conversion to the iris region detected in the first step so that feature data unique to the person can not be extracted.

2. The method of claim 1, wherein

the image conversion is image conversion in which the iris region is divided
10 into a plurality of portions and respective images of divided portions are re-arranged in a predetermined order or at random.

3. The method of claim 1, wherein

the image conversion is image conversion in which an image of the iris region
15 is replaced with a predetermined iris pattern image.

4. The method of claim 1, wherein

the image conversion is image conversion in which a predetermined iris pattern image is superimposed on an image of the iris region.

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5. The method of claim 1, wherein the second step includes the steps of:

decomposing an image of the iris region into pieces according to a spatial frequency,

performing predetermined conversion to the piece with a predetermined band of the decomposed image, and

re-synthesizing the pieces with respective bands.

5 6. The method of claim 1, wherein

the image conversion is image conversion in which a digital watermark is embedded in an image of the iris region.

7. The method of claim 1, wherein

10 in the second step, when the detected iris region has a smaller size than a predetermined size, the image conversion is not performed.

8. The method of claim 1, wherein the second step includes the steps of:

performing reflection component separation to the detected iris region to
15 obtain a diffusion reflection image and a specular reflection image;

performing the image conversion to the diffusion reflection image; and

adding the specular reflection image to the image which has been image-converted.

20 9. An image processing apparatus comprising:

an iris detection section for detecting an iris region of an eye of a person from an original image; and

an image conversion section for performing image conversion to the iris region detected by the iris detection section so that feature data unique to the person can not be extracted.

5 10. An image capturing apparatus comprising:
an image capturing section; and
the image processing apparatus of claim 9 for receiving as the original image an image captured by the image capturing section.

10 11. An image output apparatus comprising:
the image processing apparatus of claim 9; and
an output section for visualizing an image which has been image-converted and output from the image processing apparatus and then outputting the image.

15 12. An iris authentication apparatus comprising:
an iris detection section for detecting an iris region of an eye of a person from an original image;
an authentication section for performing authentication using an image of the iris region detected by the iris detection section;
20 a digital watermark detection section for detecting the presence or absence of a predetermined digital watermark for the iris region detected by the iris detection section; and

a control section for controlling an execution/stop of an authentication operation of the authentication section according to the presence or absence of the digital watermark detected by the digital watermark detection section.